

## Patent Abstracts of Japan

PUBLICATION NUMBER : 62069151  
PUBLICATION DATE : 30-03-87

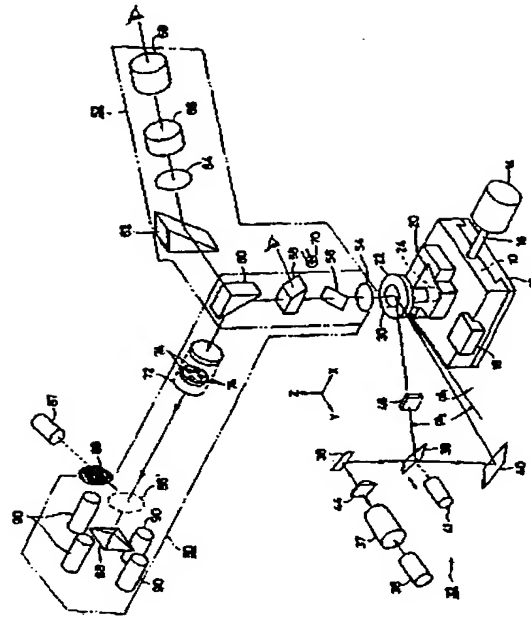
APPLICATION DATE : 24-09-85  
APPLICATION NUMBER : 60210529

APPLICANT : HITACHI ELECTRONICS ENG CO LTD;

INVENTOR : TANAKA YUZO;

INT.CL. : G01N 21/88 H01L 21/66

TITLE : INSPECTING DEVICE FOR FOREIGN  
MATTER IN WAFER



**ABSTRACT :** PURPOSE: To obtain the irradiation density and the detection sensitivity which are equal and high enough in grade irrespective of an irradiation angle without making an optical beam irradiating system complicated and expensive, by constituting the titled device so that an optical beam irradiated to the surface of wafer can be switched to two kinds of large and small irradiation angles.

**CONSTITUTION:** An inspecting device irradiates an optical beam from the diagonal direction to the surface of a wafer 30 by an optical beam irradiating system 32, receives a reflected light from on the surface of the wafer 30 by a photoelectric element 90 and converts it to an electric signal, and decides whether a foreign matter exists on the surface of the wafer 30, etc., based on a level of the electric signal. Also, the irradiating system 32 irradiates the optical beam to the upper face of the wafer 30 from the Y direction at an irradiation angle  $\phi_1$  or  $\phi_2$ . In case said beam is irradiated at the angle  $\phi_1$ , the beam diameter is expanded by a beam expander 37, and thereafter, the sectional shape is corrected by a cylindrical lens 44, and the beam is irradiated by a circular irradiation spot to the surface of the wafer 30 through fixed mirrors 38, 40. When the irradiation angle is switched to the angle  $\phi_2$  by a movable mirror 39, the optical beam which is corrected by the lens 44 is brought to a reverse correction by a cylindrical lens 46, and irradiated by a circular irradiation spot to the surface of the wafer 30.

COPYRIGHT: (C)1987,JPO&Japio